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**APPENDIX A:**  
**ESTIMATION OF SOIL DIRECT CONTACT/INGESTION REL**

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### Estimation of Soil Direct Contact/Ingestion Remediation Level

The remediation level (REL) for the direct contact/ingestion pathway for total TPH in soil at this site was estimated using the Washington State Department of Ecology MTCATPH (Version 10) model in accordance with guidance outlined in *Workbook Tools for Calculating Soil and Ground Water Cleanup Levels under the Model Toxics Control Act Cleanup Regulation User's Guide*, Publication No. 01-09-073, dated August 2001. The model was run using site-specific chemical data from 14 soil samples that were collected from within the zone of petroleum impact. The model was run using default toxicity values and exposure assumptions for the unrestricted land use scenario. For each of the 14 samples two values were derived: one corresponding to the TPH concentration at which the Hazard Index (HI) for non-cancer risk would be equal to 1 and one corresponding to the TPH concentration at which the cancer risk would be equal to  $1 \times 10^{-5}$ . MTCATPH worksheets showing input and output parameters for each sample are attached. The TPH values are summarized in the following table:

Sample	TPH @ H1=1 (mg/kg)	TPH @ Risk = $1 \times 10^{-5}$ (mg/kg)
SB2-6.5	2,589	618,333
SB6-7	2,656	298,001
SB11-3.5	2,763	740,942
SB12-5.5	3,036	355,041
SB14-5.5	3,378	328,481
SB16-8	3,154	191,466
SB18-8	2,910	66,295
SB20-4.5	2,985	1,293,552
SB22-1	2,225	1,153,226
SB23-4.5	3,116	1,463,253
SB24-4	3,325	26,673
SB27-4.5	3,390	73,046
SB38-2.5	2,618	7,691,185
SB39-5	2,497	313,732
Maximum	3,390	7,691,185
Minimum	<b>2,225</b>	26,673
Mean	2,903	1,043,802
Median	2,948	341,761

Calculated TPH values for cancer risk =  $1 \times 10^{-5}$  are extremely high (far above soil concentrations that would be physically possible); this reflects the very low fraction of carcinogenic compounds present in the soil samples. Calculated TPH values for non-cancer risk (HI = 1) fall within a very narrow range around 3,000 mg/kg. In order to be conservative (protective), the minimum calculated TPH concentration of **2,225 mg/kg** was selected as the REL for total TPH (i.e., the total concentration of TPH-Gx + TPH-Dx) that is protective of the direct contact/ingestion pathway under the unrestricted land use exposure scenario at this site.

## **MTCATPH Worksheets**

**TPH @ HI = 1**

# Worksheet for Calculating Soil Cleanup Level for Soil Direct Contact pathway: Method B-Unrestricted Land use (Refer to WAC 173-340-740)

Date: 3/27/2006  
Site Name: 302095 Morton  
Sample Name: SR2-6-5

Chemical of Concern or EC Group	Measured Soil Conc dry basis	Exposure Parameters			Toxicity Parameters			Current Condition			Adjusted Condition		
		AB1	AF	ABS <sub>d</sub>	GI	RMD <sub>d</sub>	CPE <sub>d</sub>	HQ	RISK	Pass or Fail?	HQ	RISK	Pass or Fail?
	mg/kg	unitless	mg/cm <sup>2</sup> -day	unitless	unitless	mg/kg-day	kg-day/mg	unitless	unitless		unitless	unitless	
<b>Petroleum EC Fraction</b>													
AL_EC >5-6	0	1	0.2	0.03	0.8	5.7							
AL_EC >6-8	37.6	1	0.2	0.03	0.8	5.7		8.9E-05		0.00E+00	1.84E-04		
AL_EC >8-10	59.9	1	0.2	0.03	0.8	0.03		2.70E-02		1.24E+02	5.58E-02		
AL_EC >10-12	170	1	0.2	0.03	0.8	0.03		7.67E-02		3.51E+02	1.58E-01		
AL_EC >12-16	470	1	0.2	0.1	0.5	0.03		2.82E-01		9.70E+02	5.82E-01		
AL_EC >16-21	280	1	0.2	0.1	0.5	2		2.52E-03		5.78E+02	5.20E-03		
AL_EC >21-34	25	1	0.2	0.1	0.5			2.25E-04		5.16E+01	4.64E-04		
AR_EC >8-10	52.28	1	0.2	0.03	0.8	0.05		1.41E-02		1.08E+02	2.92E-02		
AR_EC >10-12	6.699	1	0.2	0.03	0.8	0.05		1.81E-03		1.38E+01	3.74E-03		
AR_EC >12-16	44	1	0.2	0.1	0.5	0.05		1.58E-02		9.08E+01	3.27E-02		
AR_EC >16-21	93.9948	1	0.2	0.1	0.5	0.03		5.64E-02		1.94E+02	1.16E-01		
AR_EC >21-34	9.7994	1	0.2	0.1	0.5	0.03		5.88E-03		2.02E+01	1.21E-02		
Benzene	0.265	1	0.2	0.0005	0.95	0.003	0.055	1.11E-03	1.46E-08	5.47E-01	2.28E-03	3.01E-08	
Toluene	0.32	1	0.2	0.03	1	0.2		2.13E-05		6.61E-01	4.40E-05		
Ethylbenzene	2.67	1	0.2	0.03	0.92	0.1		3.58E-04		5.51E+00	7.38E-04		
Total Xylenes	0.35	1	0.2	0.03	0.9	2		2.35E-06		7.23E-01	4.85E-06		
Total Naphthalenes	0.001	1	0.2	0.13	0.89	0.02		8.26E-07		2.06E-03	1.70E-06		
n-Hexane	1.4	1	0.2	0.03	0.8	0.06		3.16E-04		2.89E+00	6.52E-04		
MTBE	0	1	0.2	0.03	0.8	0.000057	85			0.00E+00	0.00E+00		
Ethylene Dichloride (EDC)	0.001	1	0.2	0.03	0.8	0.03	0.091	4.51E-07	0.00E+00	2.06E-03	9.31E-07	0.00E+00	
Benzof(a)anthracene	0.0003	1	0.2	0.13	0.89	0.73		2.89E-10		6.19E-04	5.97E-10		
Benzof(b)fluoranthene	0.0003	1	0.2	0.13	0.89	0.73		2.89E-10		6.19E-04	5.97E-10		
Benzof(k)fluoranthene	0.0003	1	0.2	0.13	0.89	0.73		2.89E-10		6.19E-04	5.97E-10		
Benzof(a)pyrene	0.0003	1	0.2	0.13	0.89	7.3		2.89E-09	for all	6.19E-04	5.97E-09	for all	
Chrysene	0.004	1	0.2	0.13	0.89	0.073		3.86E-10		8.26E-03	7.97E-10		
Dibenzo(a,h)anthracene	0.0003	1	0.2	0.13	0.89	2.92		1.16E-09		6.19E-04	2.39E-09		
Indeno(1,2,3-cd)pyrene	0.0003	1	0.2	0.13	0.89	0.73		2.89E-10		6.19E-04	5.97E-10		
Sum	1254.286							4.84E-01	2.03E-08				

a. "TPH Test" button below is for testing adjusted condition at a specified TPH concentration.

b. Check columns at left for Pass/Fail detail.

Current Condition	
TPH, mg/kg= 1254.286	
HI= 4.844E-01	
Cancer RISK= 2.028E-08	
Pass or Fail? Pass	
Check Residual Saturation (WAC340-747(10))	

Adjusted Condition	
TPH, mg/kg= 2589.305	
HI= 1.000E+00	
Cancer RISK= 4.188E-08	
Pass or Fail? Pass	
Check Residual Saturation (WAC340-747(10))	

Exposure Parameters	
for Non-carcinogens	Units
Average Body Weight, ABW	16 kg
Averaging Time, AT	6 yr
Exposure Frequency, EF	1 yr
Exposure Duration, ED	6 yr
Soil Ingestion Rate, SIR	200 mg/day
Dermal Surface Area, SA	2200 cm <sup>2</sup>
for Carcinogens	
Averaging time, AT	75 yr

**Worksheet for Calculating Soil Cleanup Level for Soil Direct Contact pathway: Method B-Unrestricted Land use**  
**(Refer to WAC 173-340-740)**

Date: 3/27/2006  
 Site Name: 302095 Morton  
 Sample Name: SB6-7

Chemical of Concern or EC Group	Measured Soil Conc dry basis	Exposure Parameters				Toxicity Parameters			Current Condition			Adjusted Condition		
		AB1	AF	ABS <sub>d</sub>	GI	RD <sub>d</sub>	CPF <sub>d</sub>	HQ	RISK	Pass or Fail?	Soil Conc being tested	HQ	RISK	Pass or Fail?
mg/kg		unitless	mg/cm <sup>2</sup> -day	unitless	unitless	mg/kg-day	kg-day/mg	unitless	unitless		mg/kg	unitless	unitless	
<b>Petroleum EC Fraction</b>														
AL_EC>5-6	0	1	0.2	0.03	0.8	5.7				0.00E+00				
AL_EC>6-8	11	1	0.2	0.03	0.8	5.7		2.6E-05		3.38E+01	8.02E-05			
AL_EC>8-10	27.9	1	0.2	0.03	0.8	0.03		1.26E-02		8.57E+01	3.87E-02			
AL_EC>10-12	92	1	0.2	0.03	0.8	0.03		4.15E-02		2.83E+02	1.27E-01			
AL_EC>12-16	320	1	0.2	0.1	0.5	0.03		1.92E-01		9.83E+02	5.90E-01			
AL_EC>16-21	220	1	0.2	0.1	0.5	2		1.98E-03		6.76E+02	6.08E-03			
AL_EC>21-34	28	1	0.2	0.1	0.5	2		2.52E-04		8.60E+01	7.74E-04			
AR_EC>8-10	25.3	1	0.2	0.03	0.8	0.05		6.85E-03		7.77E+01	2.10E-02			
AR_EC>10-12	4.1	1	0.2	0.03	0.8	0.05		1.11E-03		1.26E+01	3.41E-03			
AR_EC>12-16	34	1	0.2	0.1	0.5	0.05		1.22E-02		1.04E+02	3.76E-02			
AR_EC>16-21	73.9928	1	0.2	0.1	0.5	0.03		4.44E-02		2.27E+02	1.36E-01			
AR_EC>21-34	11.9994	1	0.2	0.1	0.5	0.03		7.20E-03		3.69E+01	2.21E-02			
Benzene	0.42	1	0.2	0.0005	0.95	0.003	0.055	1.75E-03	2.31E-08	1.29E+00	5.38E-03	7.10E-08		
Toluene	0.163	1	0.2	0.03	1	0.2		1.09E-05		5.01E-01	3.34E-05			
Ethylbenzene	5.9	1	0.2	0.03	0.92	0.1		7.90E-04		1.81E+01	2.43E-03			
Total Xylenes	1.7	1	0.2	0.03	0.9	2		1.14E-05		5.22E+00	3.50E-05			
Total Naphthalenes	1.7	1	0.2	0.13	0.89	0.02		1.40E-03		5.22E+00	4.31E-03			
n-Hexane	6.4	1	0.2	0.03	0.8	0.06		1.44E-03		1.97E+01	4.43E-03			
MTBE	0	1	0.2	0.03	0.8	0.000057	85			0.00E+00	0.00E+00	0.00E+00		
Ethylene Dibromide (EDB)	0	1	0.2	0.03	0.8					0.00E+00	0.00E+00	0.00E+00		
1,2 Dichloroethane (EDC)	0.001	1	0.2	0.03	0.8	0.03	0.091	4.51E-07	9.85E-11	3.07E-03	1.39E-06	3.03E-10		
Benzof(a)anthracene	0.0003	1	0.2	0.13	0.89		0.73	2.89E-10		9.22E-04		8.89E-10		
Benzof(b)fluoranthene	0.0003	1	0.2	0.13	0.89		0.73	2.89E-10		9.22E-04		8.89E-10		
Benzof(k)fluoranthene	0.0003	1	0.2	0.13	0.89		0.73	2.89E-10		9.22E-04		8.89E-10		
Benzof(a)pyrene	0.0003	1	0.2	0.13	0.89		7.3	2.89E-09		9.22E-04		8.89E-09		
Chrysene	0.006	1	0.2	0.13	0.89		0.073	5.79E-10		1.84E-02		1.78E-09		
Dibenzof(a,h)anthracene	0.0003	1	0.2	0.13	0.89		2.92	1.16E-09		9.22E-04		3.56E-09		
Indeno(1,2,3-cd)pyrene	0.0003	1	0.2	0.13	0.89		0.73	2.89E-10		9.22E-04		8.89E-10		
Sum	864.584							3.26E-01	2.90E-08	2.66E+03	1.00E+00	8.91E-08		

a. "TPH Test" button below is for testing adjusted condition at a specified TPH concentration.  
 b. Check columns at left for Pass/Fail detail.

Current Condition	
TPH, mg/kg= 864.584	
HI= 3.255E-01	
Cancer RISK= 2.901E-08	
Pass or Fail? Pass	

Adjusted Condition	
TPH, mg/kg= 2655.828	
HI= 1.000E+00	
Cancer RISK= 8.912E-08	
Pass or Fail? Pass	
Check Residual Saturation (W/AC340-747(T0))	

Exposure Parameters	
Units	
Average Body Weight, ABW	16 kg
Averaging Time, AT	6 yr
Exposure Frequency, EF	1 unitless
Exposure Duration, ED	6 yr
Soil Ingestion Rate, SIR	200 mg/day
Dermal Surface Area, SA	2200 cm <sup>2</sup>
for Carcinogens	
Averaging time, AT C	75 yr

# Worksheet for Calculating Soil Cleanup Level for Soil Direct Contact pathway: Method B-Unrestricted Land use (Refer to WAC 173-340-740)

Date: 3/27/2006

Site Name: 302095 Morton

Sample Name: SB11-3.5

Chemical of Concern or EC Group	Measured Soil Conc dry basis	Exposure Parameters			Toxicity Parameters			Current Condition			Adjusted Condition			
		ABI	AF	ABS <sub>d</sub>	GI	R <sub>TD</sub>	CPF <sub>s</sub>	HQ	RISK	Pass or Fail?	Soil Conc being tested	HQ	RISK	Pass or Fail?
Petroleum EC Fraction														
AL_EC >5-6	0	1	0.2	0.03	0.8	5.7		9.8E-05			0.00E+00			
AL_EC >6-8	41.1	1	0.2	0.03	0.8	5.7		8.35E-01			8.35E-01	1.98E-04		
AL_EC >8-10	48.7	1	0.2	0.03	0.8	0.03		2.20E-02			9.89E-01	4.46E-02		
AL_EC >10-12	150	1	0.2	0.03	0.8	0.03		6.77E-02			3.05E-02	1.37E-01		
AL_EC >12-16	450	1	0.2	0.1	0.5	0.03		2.70E-01			9.14E-02	5.48E-01		
AL_EC >16-21	330	1	0.2	0.1	0.5	2		2.97E-03			6.70E-02	6.03E-03		
AL_EC >21-34	33	1	0.2	0.1	0.5	2		2.97E-04			6.70E-01	6.03E-04		
AR_EC >8-10	62.5	1	0.2	0.03	0.8	0.05		1.69E-02			1.27E-02	3.44E-02		
AR_EC >10-12	5	1	0.2	0.03	0.8	0.05		1.35E-03			1.02E-01	2.75E-03		
AR_EC >12-16	67	1	0.2	0.1	0.5	0.05		2.41E-02			1.36E-02	4.90E-02		
AR_EC >16-21	99.9881	1	0.2	0.1	0.5	0.03		6.00E-02			2.03E-02	1.22E-01		
AR_EC >21-34	11.9994	1	0.2	0.1	0.5	0.03		7.20E-03			2.44E-01	1.46E-02		
Benzene	0.16	1	0.2	0.0005	0.95	0.003	0.055	6.67E-04	8.81E-09		3.25E-01	1.36E-03	1.79E-08	
Toluene	0.328	1	0.2	0.03	1	0.2		2.19E-05			6.66E-01	4.44E-05		
Ethylbenzene	16	1	0.2	0.03	0.92	0.1		2.14E-03			3.25E-01	4.35E-03		
Total Xylenes	1.7	1	0.2	0.03	0.9	2		1.14E-05			3.45E-00	2.32E-05		
Total Naphthalenes	12	1	0.2	0.13	0.89	0.02		9.91E-03			2.44E-01	2.01E-02		
n-Hexane	31	1	0.2	0.03	0.8	0.06		6.99E-03			6.30E-01	1.42E-02		
MTBE	0	1	0.2	0.03	0.8	0.000057	85		0.00E+00		0.00E+00	0.00E+00	0.00E+00	
Ethylene Dibromide (EDB)	0	1	0.2	0.03	0.8	0.03					0.00E+00	0.00E-00	0.00E+00	
1,2 Dichloroethane (EDC)	0.001	1	0.2	0.03	0.8	0.03	0.091	4.51E-07	9.85E-11		2.03E-03	9.16E-07	2.00E-10	
Benzof(a)anthracene	0.004	1	0.2	0.13	0.89		0.73	3.86E-09		for all	8.12E-03	7.84E-09		for all
Benzof(b)fluoranthene	0.0003	1	0.2	0.13	0.89		0.73	2.89E-10			6.09E-04	5.88E-10		
Benzof(k)fluoranthene	0.0003	1	0.2	0.13	0.89		0.73	2.89E-09		cPAHs	6.09E-04	5.88E-09		
Chrysene	0.007	1	0.2	0.13	0.89		0.073	6.75E-10			1.42E-02	1.37E-09		
Dibenzof(a,h)anthracene	0.0003	1	0.2	0.13	0.89		2.92	1.16E-09			6.09E-04	2.35E-09		
Indeno(1,2,3-cd)pyrene	0.0003	1	0.2	0.13	0.89		0.73	2.89E-10			6.09E-04	5.88E-10		
Sum	1360.489							4.92E-01	1.84E-08		2.76E+03	1.00E+00	3.73E-08	

a. "TPH Test" button below is for testing adjusted condition at a specified TPH concentration.

b. Check columns at left for Pass/Fail detail.

<b>Current Condition</b>	
TPH, mg/kg=	1360.489
HI=	4.923E-01
Cancer RISK=	1.836E-08
Pass or Fail?	Pass
<b>Check Residual Saturation (WAC340-747(10))</b>	

<b>Adjusted Condition</b>	
TPH, mg/kg=	2763.468
HI=	1.000E+00
Cancer RISK=	3.730E-08
Pass or Fail?	Pass
<b>Check Residual Saturation (WAC340-747(10))</b>	

<b>Exposure Parameters</b>	
for Non-carcinogens	Units
Average Body Weight, ABW	kg
Averaging Time, AT	yr
Exposure Frequency, EF	unitless
Exposure Duration, ED	yr
Soil Ingestion Rate, SIR	mg/day
Dermal Surface Area, SA	cm <sup>2</sup>
for Carcinogens	
Averaging time, AT	75 yr

**Worksheet for Calculating Soil Cleanup Level for Soil Direct Contact pathway: Method B-Unrestricted Land use**  
**(Refer to WAC 173-340-740)**

Date: 3/27/2006  
 Site Name: 302095 Morton  
 Sample Name: SB12-5.5

Chemical of Concern or EC Group	Measured Soil Conc dry basis	Exposure Parameters				Toxicity Parameters		Current Condition			Adjusted Condition			
		ABI	AF	ABS <sub>d</sub>	GI	RfD <sub>a</sub>	CPF <sub>a</sub>	HQ	RISK	Pass or Fail?	Soil Conc being tested	HQ	RISK	Pass or Fail?
Petroleum EC Fraction														
AL_EC >5-6	0.944	1	0.2	0.03	0.8	5.7		2.2E-06			2.94E+01	6.98E-05		
AL_EC >6-8	7.22	1	0.2	0.03	0.8	5.7		1.7E-05			2.25E+02	5.34E-04		
AL_EC >8-10	13.8	1	0.2	0.03	0.8	0.03		6.22E-03			4.30E+02	1.94E-01		
AL_EC >10-12	5.9	1	0.2	0.03	0.8	0.03		2.66E-03			1.84E+02	8.29E-02		
AL_EC >12-16	26	1	0.2	0.1	0.5	0.03		1.56E-02			8.10E+02	4.86E-01		
AL_EC >16-21	23	1	0.2	0.1	0.5	2		2.07E-04			7.17E+02	6.45E-03		
AL_EC >21-34	2.6	1	0.2	0.1	0.5	2		2.34E-05			8.10E+01	7.29E-04		
AR_EC >8-10	8.368	1	0.2	0.03	0.8	0.05		2.26E-03			2.61E+02	7.06E-02		
AR_EC >10-12	0.499	1	0.2	0.03	0.8	0.05		1.35E-04			1.55E+01	4.21E-03		
AR_EC >12-16	1.9	1	0.2	0.1	0.5	0.05		6.84E-04			5.92E+01	2.13E-02		
AR_EC >16-21	5.89925	1	0.2	0.1	0.5	0.03		3.54E-03			1.84E+02	1.10E-01		
AR_EC >21-34	1.1997	1	0.2	0.1	0.5	0.03		7.20E-04			3.74E+01	2.24E-02		
Benzene	0.0005	1	0.2	0.0005	0.95	0.003	0.055	2.09E-06	2.75E-11		1.56E-02	6.50E-05	8.58E-10	
Toluene	0.0631	1	0.2	0.03	1	0.2		4.20E-06			1.97E+00	1.31E-04		
Ethylbenzene	0.001	1	0.2	0.03	0.92	0.1		1.34E-07			3.12E-02	4.17E-06		
Total Xylenes	0.001	1	0.2	0.03	0.9	2		6.71E-09			3.12E-02	2.09E-07		
Total Naphthalenes	0.001	1	0.2	0.13	0.89	0.02		8.26E-07			3.12E-02	2.57E-05		
n-Hexane	0.056	1	0.2	0.03	0.8	0.06		1.26E-05			1.74E+00	3.93E-04		
MTBE	0	1	0.2	0.03	0.8	0.000057	85		0.00E+00		0.00E+00	0.00E+00	0.00E+00	
Ethylene Dichloride (EDB)	0	1	0.2	0.03	0.8	0.03		4.51E-07	9.85E-11		3.12E-02	1.41E-05	3.07E-09	
1,2-Dichloroethane (EDC)	0.001	1	0.2	0.03	0.8	0.03					4.67E-03	4.51E-09	4.51E-09	
Benzol(a)anthracene	0.00015	1	0.2	0.13	0.89		0.73	1.45E-10	1.45E-10	for all	4.67E-03	4.51E-09	4.51E-09	for all
Benzol(b)fluoranthene	0.00015	1	0.2	0.13	0.89		0.73	1.45E-10	1.45E-10	for all	4.67E-03	4.51E-09	4.51E-09	for all
Benzol(k)fluoranthene	0.00015	1	0.2	0.13	0.89		0.73	1.45E-10	1.45E-10	for all	4.67E-03	4.51E-09	4.51E-09	for all
Benzol(a)pyrene	0.00015	1	0.2	0.13	0.89		0.73	1.45E-10	1.45E-10	for all	4.67E-03	4.51E-09	4.51E-09	for all
Chrysene	0.00015	1	0.2	0.13	0.89		0.73	1.45E-10	1.45E-10	for all	4.67E-03	4.51E-09	4.51E-09	for all
Dibenzol(a,h)anthracene	0.00015	1	0.2	0.13	0.89		2.92	5.79E-10			4.67E-03	1.80E-08		
Indeno(1,2,3-cd)pyrene	0.00015	1	0.2	0.13	0.89		0.73	1.45E-10			4.67E-03	4.51E-09		
Sum	97.4546							3.21E-02	2.74E-09		3.04E+03	1.00E+00	8.55E-08	

a. "TPH Test" button below is for testing adjusted condition at a specified TPH concentration.

b. Check columns at left for Pass/Fail detail.

Current Condition	
TPH, mg/kg=	97.455
HI=	3.210E-02
Cancer RISK=	2.745E-09
Pass or Fail?	Pass

Adjusted Condition	
TPH, mg/kg=	3036.098
HI=	1.000E+00
Cancer RISK=	8.551E-08
Pass or Fail?	Pass
Check Residual Saturation (WAC340-747(10))	

Exposure Parameters	
Average Body Weight, ABW	16 kg
Average Time, AT	6 yr
Exposure Frequency, EF	1 yr
Exposure Duration, ED	6 yr
Soil Ingestion Rate, SIR	200 mg/day
Dermal Surface Area, SA	2200 cm <sup>2</sup>
for Carcinogens	75 yr
Averaging time, AT <sub>C</sub>	yr

# Worksheet for Calculating Soil Cleanup Level for Soil Direct Contact pathway: Method B-Unrestricted Land use (Refer to WAC 173-340-740)

Date: 3/27/2006  
 Site Name: 302095 Morton  
 Sample Name: SR14-5.5

Chemical of Concern or EC Group	Measured Soil Conc dry basis	Exposure Parameters				Toxicity Parameters		Current Condition			Adjusted Condition			
		AB1	AF	ABS <sub>d</sub>	GI	RMD <sub>d</sub>	CPF <sub>o</sub>	HQ	RISK	Pass or Fail?	Soil Conc being tested	HQ	RISK	Pass or Fail?
		mg/kg	unitless	mg/cm <sup>2</sup> -day	unitless	unitless	mg/kg-day	kg-day/mg	unitless	unitless	mg/kg	unitless	unitless	
<b>Petroleum EC Fraction</b>														
AL_EC >5-6	1.57	1	0.2	0.03	0.8	5.7		3.7E-06			6.84E+00	1.62E-05		
AL_EC >6-8	101	1	0.2	0.03	0.8	5.7		2.4E-04			4.40E+02	1.04E-03		
AL_EC >8-10	94.4	1	0.2	0.03	0.8	0.03		4.26E-02			4.11E+02	1.85E-01		
AL_EC >10-12	44	1	0.2	0.03	0.8	0.03		1.98E-02			1.92E+02	8.64E-02		
AL_EC >12-16	150	1	0.2	0.1	0.5	0.03		9.00E-02			6.53E+02	3.92E-01		
AL_EC >16-21	150	1	0.2	0.1	0.5	2		1.35E-03			6.53E+02	5.88E-03		
AL_EC >21-34	23	1	0.2	0.1	0.5	2		2.07E-04			1.00E+02	9.01E-04		
AR_EC >8-10	115.44	1	0.2	0.03	0.8	0.05		3.12E-02			5.03E+02	1.36E-01		
AR_EC >10-12	2.4	1	0.2	0.03	0.8	0.05		6.50E-04			1.05E+01	2.83E-03		
AR_EC >12-16	16	1	0.2	0.1	0.5	0.05		5.76E-03			6.97E+01	2.51E-02		
AR_EC >16-21	46.9821	1	0.2	0.1	0.5	0.03		2.82E-02			2.05E+02	1.23E-01		
AR_EC >21-34	8.5994	1	0.2	0.1	0.5	0.03		5.16E-03			3.74E+01	2.25E-02		
Benzene	0.245	1	0.2	0.0005	0.95	0.003	0.055	1.02E-03	1.35E-08		1.07E+00	4.45E-03	5.87E-08	
Toluene	0.483	1	0.2	0.03	1	0.2		3.22E-05			2.10E+00	1.40E-04		
Ethylbenzene	5.46	1	0.2	0.03	0.92	0.1		7.31E-04			2.38E+01	3.18E-03		
Total Xylenes	12.1	1	0.2	0.03	0.9	2		8.12E-05			5.27E+01	3.53E-04		
Total Naphthalenes	2.7	1	0.2	0.13	0.89	0.02		2.23E-03			1.18E+01	9.71E-03		
n-Hexane	1.5	1	0.2	0.03	0.8	0.06		3.38E-04			6.53E+00	1.47E-03		
MTBE	0	1	0.2	0.03	0.8	0.000057	85		0.00E+00		0.00E+00	0.00E+00	0.00E+00	
Ethylene Dichloride (EDB)	0	1	0.2	0.03	0.8			4.51E-07	9.85E-11		4.35E-03	1.96E-06	4.29E-10	
1,2-Dichloroethane (EDC)	0.001	1	0.2	0.03	0.8									
Benzof(a)anthracene	0.004	1	0.2	0.13	0.89		0.73		3.86E-09	for	1.74E-02		1.68E-08	for
Benzof(b)fluoranthene	0.0003	1	0.2	0.13	0.89		0.73		2.89E-10	all	1.31E-03		1.26E-09	all
Benzof(k)fluoranthene	0.0003	1	0.2	0.13	0.89		0.73		2.89E-10	cPAHs	1.31E-03		1.26E-09	cPAHs
Benzof(a)pyrene	0.0003	1	0.2	0.13	0.89		7.3		2.89E-09		1.31E-03		1.26E-08	
Chrysene	0.013	1	0.2	0.13	0.89		0.073		1.25E-09		5.66E-02		5.46E-09	
Dibenzo(a,h)anthracene	0.0003	1	0.2	0.13	0.89		2.92		1.16E-09		1.31E-03		5.04E-09	
Indeno(1,2,3-cd)pyrene	0.0003	1	0.2	0.13	0.89		0.73		2.89E-10		1.31E-03		1.26E-09	
Sum	775.899							2.30E-01	2.36E-08		3.38E+03	1.00E+00	1.03E-07	

a. "TPH Test" button below is for testing adjusted condition at a specified TPH concentration.

b. Check columns at left for Pass/Fail detail.

Current Condition	
TPH, mg/kg= 775.899	
HI= 2.297E-01	
Cancer RISK= 2.362E-08	
Pass or Fail? Pass	

Adjusted Condition	
TPH, mg/kg= 3378.478	
HI= 1.000E+00	
Cancer RISK= 1.029E-07	
Pass or Fail? Pass	
Check Residual Saturation (WAC340-740(10))	

Exposure Parameters		Units
For Non-carcinogens		
Average Body Weight, ABW	16	kg
Averaging Time, AT	6	yr
Exposure Frequency, EF	1	unitless
Exposure Duration, ED	6	yr
Soil Ingestion Rate, SIR	200	mg/day
Dermal Surface Area, SA	2200	cm <sup>2</sup>
For Carcinogens		
Averaging time, AT C	75	yr

# Worksheet for Calculating Soil Cleanup Level for Soil Direct Contact pathway: Method B-Unrestricted Land use (Refer to WAC 173-340-740)

Date: 3/27/2006

Site Name: 302095 Morton

Sample Name: SB16-8

Chemical of Concern or EC Group	Measured Soil Conc dry basis	Exposure Parameters			Toxicity Parameters			Current Condition			Adjusted Condition			
		AB1	AF	ABS <sub>0</sub>	GI	RD <sub>0</sub>	CPF <sub>0</sub>	HQ	RISK	Pass or Fail?	Soil Conc being tested	HQ	RISK	Pass or Fail?
	mg/kg	unitless	mg/cm <sup>2</sup> -day	unitless	unitless	mg/kg-day	kg-day/mg	unitless	unitless		mg/kg	unitless	unitless	
<b>Petroleum EC Fraction</b>														
AL_EC>5-6	1.81	1	0.2	0.03	0.8	5.7		4.3E-06			1.24E+01	2.94E-05		
AL_EC>6-8	32.9	1	0.2	0.03	0.8	5.7		7.8E-05			2.25E+02	5.34E-04		
AL_EC>8-10	18.8	1	0.2	0.03	0.8	0.03		8.48E-03			1.28E+02	5.79E-02		
AL_EC>10-12	29	1	0.2	0.03	0.8	0.03		1.31E-02			1.98E+02	8.94E-02		
AL_EC>12-16	140	1	0.2	0.1	0.5	0.03		8.40E-02			9.56E+02	5.74E-01		
AL_EC>16-21	140	1	0.2	0.1	0.5	2		1.26E-03			9.56E+02	8.61E-03		
AL_EC>21-34	19	1	0.2	0.1	0.5	2		1.71E-04			1.30E+02	1.17E-03		
AR_EC>8-10	13.795	1	0.2	0.03	0.8	0.05		3.73E-03			9.42E+01	2.55E-02		
AR_EC>10-12	1.93	1	0.2	0.03	0.8	0.05		5.22E-04			1.32E+01	3.57E-03		
AR_EC>12-16	13	1	0.2	0.1	0.5	0.05		4.68E-03			8.88E+01	3.20E-02		
AR_EC>16-21	39.9985	1	0.2	0.1	0.5	0.03		2.40E-02			2.73E+02	1.64E-01		
AR_EC>21-34	6.9994	1	0.2	0.1	0.5	0.03		4.20E-03			4.78E+01	2.87E-02		
Benzene	0.341	1	0.2	0.0005	0.95	0.003	0.055	1.42E-03	1.88E-08		2.33E+00	9.72E-03	1.28E-07	
Toluene	0.129	1	0.2	0.03	1	0.2		8.59E-06			8.81E-01	5.87E-05		
Ethylbenzene	1.16	1	0.2	0.03	0.92	0.1		1.55E-04			7.92E+00	1.06E-03		
Total Xylenes	0.645	1	0.2	0.03	0.9	2		4.33E-06			4.41E+00	2.96E-05		
Total Naphthalenes	0.17	1	0.2	0.13	0.89	0.02		1.40E-04			1.16E+00	9.59E-04		
n-Hexane	2	1	0.2	0.03	0.8	0.06		4.51E-04			1.37E+01	3.08E-03		
MTBE	0	1	0.2	0.03	0.8	0.000057	85		0.00E+00		0.00E+00	0.00E+00	0.00E+00	
1,2-Dichloroethane (EDC)	0.001	1	0.2	0.03	0.8	0.03	0.091	4.51E-07	9.85E-11		6.83E-03	3.08E-06	6.73E-10	
Benzof(a)anthracene	0.0003	1	0.2	0.13	0.89		0.73	2.89E-10		for all	2.05E-03		1.98E-09	
Benzof(b)fluoranthene	0.0003	1	0.2	0.13	0.89		0.73	2.89E-10			2.05E-03		1.98E-09	
Benzof(k)fluoranthene	0.0003	1	0.2	0.13	0.89		0.73	2.89E-09		cPAHs	2.05E-03		1.98E-08	
Chrysene	0.0003	1	0.2	0.13	0.89		0.073	2.89E-11			2.05E-03		1.98E-10	
Dibenzof(a,h)anthracene	0.0003	1	0.2	0.13	0.89		2.92	1.16E-09			2.05E-03		7.91E-09	
Indeno(1,2,3-cd)pyrene	0.0003	1	0.2	0.13	0.89		0.73	2.89E-10			2.05E-03		1.98E-09	
Sum	461.681							1.46E-01	2.41E-08		3.15E+03	1.00E+00	1.65E-07	

a "TPH Test" button below is for testing adjusted condition at a specified TPH concentration.

b. Check columns at left for Pass/Fail detail.

Current Condition	
TPH, mg/kg= 461.681	
HI= 1.464E-01	
Cancer RISK= 2.411E-08	
Pass or Fail? Pass	

Adjusted Condition	
TPH, mg/kg= 3153.770	
HI= 1.000E+00	
Cancer RISK= 1.647E-07	
Pass or Fail? Pass	
Check Residual Saturation (WAC340-747(10))	

Exposure Parameters	
for Non-carcinogens	Units
Average Body Weight, ABW	16 kg
Averaging Time, AT	6 yr
Exposure Frequency, EF	1 yr
Exposure Duration, ED	6 yr
Soil Ingestion Rate, SIR	200 mg/day
Dermal Surface Area, SA	2200 cm <sup>2</sup>
for Carcinogens	75 yr
Averaging time, AT C	

**Worksheet for Calculating Soil Cleanup Level for Soil Direct Contact pathway: Method B-Unrestricted Land use**  
**(Refer to WAC 173-340-740)**

Date: 3/27/2006  
 Site Name: 302095 Morton  
 Sample Name: SB18-8

Chemical of Concern or EC Group	Measured Soil Conc dry basis	Exposure Parameters			Toxicity Parameters			Current Condition			Adjusted Condition			
		AB1	AF	ABS <sub>a</sub>	GI	RMD <sub>a</sub>	CPF <sub>a</sub>	HQ	RISK	Pass or Fail?	Soil Conc being tested	HQ	RISK	Pass or Fail?
	mg/kg	unitless	mg/cm <sup>2</sup> -day	unitless	unitless	mg/kg-day	kg-day/mg	unitless	unitless		mg/kg	unitless	unitless	
<b>Petroleum EC Fraction</b>														
AL_EC >5-6	0	1	0.2	0.03	0.8	5.7		2.8E-04			0.00E+00			
AL_EC >6-8	118	1	0.2	0.03	0.8	5.7		3.68E+02			8.73E-04			
AL_EC >8-10	63.2	1	0.2	0.03	0.8	0.03		1.97E+02			8.89E-02			
AL_EC >10-12	85	1	0.2	0.03	0.8	0.03		3.83E-02			2.65E+02	1.20E-01		
AL_EC >12-16	260	1	0.2	0.1	0.5	0.03		1.56E-01			8.11E+02	4.86E-01		
AL_EC >16-21	150	1	0.2	0.1	0.5	2		4.68E+02			4.21E+03			
AL_EC >21-34	16	1	0.2	0.1	0.5	2		4.99E+01			4.49E-04			
AR_EC >8-10	70	1	0.2	0.03	0.8	0.05		1.89E-02			5.91E-02			
AR_EC >10-12	6	1	0.2	0.03	0.8	0.05		1.62E-03			1.87E+01	5.06E-03		
AR_EC >12-16	40	1	0.2	0.1	0.5	0.05		1.44E-02			1.25E+02	4.49E-02		
AR_EC >16-21	59.9985	1	0.2	0.1	0.5	0.03		3.60E-02			1.87E+02	1.12E-01		
AR_EC >21-34	8.0994	1	0.2	0.1	0.5	0.03		4.86E-03			2.53E+01	1.52E-02		
Benzene	2.46	1	0.2	0.0005	0.95	0.003	0.055	1.03E-02	1.35E-07		7.67E+00	3.20E-02	4.22E-07	
Toluene	0.62	1	0.2	0.03	1	0.2		4.13E-05			1.93E+00	1.29E-04		
Ethylbenzene	14	1	0.2	0.03	0.92	0.1		1.88E-03			4.37E+01	5.85E-03		
Total Xylenes	18	1	0.2	0.03	0.9	2		1.21E-04			5.61E+01	3.77E-04		
Total Naphthalenes	5	1	0.2	0.13	0.89	0.02		4.13E-03			1.56E+01	1.29E-02		
n-Hexane	17	1	0.2	0.03	0.8	0.06		3.83E-03			5.30E+01	1.20E-02		
MTBE	0	1	0.2	0.03	0.8	0.000057	85	0.00E+00			0.00E+00	0.00E+00	0.00E+00	
1,2-Dichloroethane (EDC)	0.001	1	0.2	0.03	0.8	0.03	0.091	4.51E-07	9.85E-11		3.12E-03	1.41E-06	3.07E-10	
Benzof(a)anthracene	0.0003	1	0.2	0.13	0.89		0.73	2.89E-10		for	9.35E-04		9.02E-10	
Benzof(b)fluoranthene	0.0003	1	0.2	0.13	0.89		0.73	2.89E-10		all	9.35E-04		9.02E-10	
Benzof(k)fluoranthene	0.0003	1	0.2	0.13	0.89		0.73	2.89E-10		cPAHs	9.35E-04		9.02E-10	
Benzof(a)pyrene	0.0003	1	0.2	0.13	0.89		7.3	2.89E-09			9.35E-04		9.02E-09	
Chrysene	0.0003	1	0.2	0.13	0.89		0.073	2.89E-11			9.35E-04		9.02E-11	
Dibenzof(a,h)anthracene	0.0003	1	0.2	0.13	0.89		2.92	1.16E-09			9.35E-04		3.61E-09	
Indeno(1,2,3-cd)pyrene	0.0003	1	0.2	0.13	0.89		0.73	2.89E-10			9.35E-04		9.02E-10	
Sum	933.381							3.21E-01	1.41E-07		2.91E+03	1.00E+00	4.39E-07	

a. "TPH Test" button below is for testing adjusted condition at a specified TPH concentration.  
 b. Check columns at left for Pass/Fail detail.

Current Condition	
TPH, mg/kg =	933.381
HI =	3.207E-01
Cancer Risk =	1.408E-07
Pass or Fail?	Pass

Adjusted Condition	
TPH, mg/kg =	2910.379
HI =	1.000E+00
Cancer Risk =	4.390E-07
Pass or Fail?	Pass
Check Residual Saturation (WAC340-747(10))	

Exposure Parameters		Units
Average Body Weight, ABW	16	kg
Average Time, AT	6	yr
Exposure Frequency, EF	1	unitless
Exposure Duration, ED	6	yr
Soil Ingestion Rate, SIR	200	mg/day
Dermal Surface Area, SA	2200	cm <sup>2</sup>
for Carcinogens		
Averaging time, AT C	75	yr

# Worksheet for Calculating Soil Cleanup Level for Soil Direct Contact pathway: Method B-Unrestricted Land use (Refer to WAC 173-340-740)

Date: 3/27/2006  
Site Name: 302095 Morton  
Sample Name: SB20-4.5

Chemical of Concern or EC Group	Measured Soil Conc dry basis	Exposure Parameters				Toxicity Parameters		Current Condition			Adjusted Condition			
		AB1	AF	ABS <sub>d</sub>	GI	RFD <sub>a</sub>	CPF <sub>a</sub>	HQ	RISK	Pass or Fail?	Soil Conc being tested	HQ	RISK	Pass or Fail?
	mg/kg	unitless	mg/cm <sup>2</sup> -day	unitless	unitless	mg/kg-day	kg-day/mg	unitless	unitless		mg/kg	unitless	unitless	
<b>Petroleum EC Fraction</b>														
AL_EC>5-6	0	1	0.2	0.03	0.8	5.7					0.00E+00			
AL_EC>6-8	139	1	0.2	0.03	0.8	5.7		3.3E-04			3.01E+02	7.16E-04		
AL_EC>8-10	104	1	0.2	0.03	0.8	0.03		4.69E-02			2.26E+02	1.02E-01		
AL_EC>10-12	140	1	0.2	0.03	0.8	0.03		6.31E-02			3.04E+02	1.37E-01		
AL_EC>12-16	380	1	0.2	0.1	0.5	0.03		2.28E-01			8.24E+02	4.95E-01		
AL_EC>16-21	300	1	0.2	0.1	0.5	2		2.70E-03			6.51E+02	5.86E-03		
AL_EC>21-34	28	1	0.2	0.1	0.5	2		2.52E-04			6.07E+01	5.47E-04		
AR_EC>8-10	66.309	1	0.2	0.03	0.8	0.05		1.79E-02			1.44E+02	3.89E-02		
AR_EC>10-12	10.5	1	0.2	0.03	0.8	0.05		2.84E-03			2.28E+01	6.16E-03		
AR_EC>12-16	68	1	0.2	0.1	0.5	0.05		2.45E-02			1.47E+02	5.31E-02		
AR_EC>16-21	92.9861	1	0.2	0.1	0.5	0.03		5.58E-02			2.02E+02	1.21E-01		
AR_EC>21-34	9.5994	1	0.2	0.1	0.5	0.03		5.76E-03			2.08E+01	1.25E-02		
Benzene	0.0005	1	0.2	0.0005	0.95	0.003	0.055	2.09E-06	2.75E-11		1.08E-03	4.52E-06	5.97E-11	
Toluene	0.539	1	0.2	0.03	1	0.2		3.59E-05			1.17E+00	7.79E-05		
Ethylbenzene	12	1	0.2	0.03	0.92	0.1		1.61E-03			2.60E+01	3.49E-03		
Total Xylenes	0.891	1	0.2	0.03	0.9	2		5.98E-06			1.93E+00	1.30E-05		
Total Naphthalenes	9.5	1	0.2	0.13	0.89	0.02		7.85E-03			2.06E+01	1.70E-02		
n-Hexane	15	1	0.2	0.03	0.8	0.06		3.38E-03			3.25E+01	7.34E-03		
MTBE	0	1	0.2	0.03	0.8	0.000057	85	0.00E+00			0.00E+00	0.00E+00	0.00E+00	
1,2-Dichloroethane (EDC)	0.001	1	0.2	0.03	0.8	0.03	0.091	4.51E-07	9.85E-11		2.17E-03	9.78E-07	2.14E-10	
Benzof(a)anthracene	0.005	1	0.2	0.13	0.89		0.73	4.82E-09		for	1.08E-02		1.05E-08	for
Benzof(b)fluoranthene	0.0003	1	0.2	0.13	0.89		0.73	2.89E-10		all	6.51E-04		6.28E-10	all
Benzof(k)fluoranthene	0.0003	1	0.2	0.13	0.89		0.73	2.89E-10		cPAHs	6.51E-04		6.28E-10	cPAHs
Benzof(a)pyrene	0.0003	1	0.2	0.13	0.89		7.3	2.89E-09			6.51E-04		6.28E-09	
Chrysene	0.0008	1	0.2	0.13	0.89		0.073	7.72E-10			1.74E-02		1.67E-09	
Dibenzof(a,h)anthracene	0.0003	1	0.2	0.13	0.89		2.92	1.16E-09			6.51E-04		2.51E-09	
Indeno(1,2,3-cd)pyrene	0.0003	1	0.2	0.13	0.89		0.73	2.89E-10			6.51E-04		6.28E-10	
Sum	1376.3405							4.61E-01	1.06E-08		2.99E+03	1.00E+00	2.31E-08	

a. "TPH Test" button below is for testing adjusted condition at a specified TPH concentration.

b. Check columns at left for Pass/Fail detail.

Current Condition	
TPH, mg/kg= 1376.341	HI= 4.610E-01
Cancer RISK= 1.064E-08	Pass or Fail? Pass
Check Residual Saturation (WAC340-747(10))	

Adjusted Condition	
TPH, mg/kg= 2985.333	HI= 1.000E+00
Cancer RISK= 2.308E-08	Pass or Fail? Pass
Check Residual Saturation (WAC340-747(10))	

Exposure Parameters	
Average Body Weight, ABW	16 kg
Average Time, AT	6 yr
Exposure Frequency, EF	1 yr
Exposure Duration, ED	6 yr
Soil Ingestion Rate, SIR	200 mg/day
Dermal Surface Area, SA	2200 cm <sup>2</sup>
for Carcinogens	
Averaging time, AT C	75 yr

# Worksheet for Calculating Soil Cleanup Level for Soil Direct Contact pathway: Method B-Unrestricted Land use (Refer to WAC 173-340-740)

Date: 3/27/2006  
 Site Name: 302095 Morton  
 Sample Name: SR22-1

Chemical of Concern or EC Group	Measured Soil Conc dry basis	Exposure Parameters					Toxicity Parameters		Current Condition			Adjusted Condition		
		AB1	AF	ABS <sub>a</sub>	GI	RMD <sub>a</sub>	CPF <sub>a</sub>	HQ	RISK	Pass or Fail?	Soil Conc being tested	HQ	RISK	Pass or Fail?
	mg/kg	unitless	mg/cm <sup>2</sup> -day	unitless	unitless	mg/kg-day	kg-day/mg	unitless	unitless		mg/kg	unitless	unitless	
Petroleum EC Fraction														
AL_EC>5-6	0.987	1	0.2	0.03	0.8	5.7		2.3E-06			1.42E+00	3.37E-06		
AL_EC>6-8	15.7	1	0.2	0.03	0.8	5.7		3.7E-05			2.26E+01	5.35E-05		
AL_EC>8-10	40.5	1	0.2	0.03	0.8	0.03		1.83E-02			5.82E+01	2.62E-02		
AL_EC>10-12	340	1	0.2	0.03	0.8	0.03		1.53E-01			4.88E+02	2.20E-01		
AL_EC>12-16	730	1	0.2	0.1	0.5	0.03		4.38E-01			1.05E+03	6.29E-01		
AL_EC>16-21	190	1	0.2	0.1	0.5	2		1.71E-03			2.73E+02	2.46E-03		
AL_EC>21-34	34	1	0.2	0.1	0.5	2		3.06E-04			4.88E+01	4.40E-04		
AR_EC>8-10	31.697	1	0.2	0.03	0.8	0.05		8.58E-03			4.55E+01	1.23E-02		
AR_EC>10-12	18.8	1	0.2	0.03	0.8	0.05		5.09E-03			2.70E+01	7.31E-03		
AR_EC>12-16	71	1	0.2	0.1	0.5	0.05		2.56E-02			1.02E+02	3.67E-02		
AR_EC>16-21	54.9961	1	0.2	0.1	0.5	0.03		3.30E-02			7.90E+01	4.74E-02		
AR_EC>21-34	19.99925	1	0.2	0.1	0.5	0.03		1.20E-02			2.87E+01	1.72E-02		
Benzene	0.003	1	0.2	0.0005	0.95	0.003	0.055	1.25E-05	1.65E-10		4.31E-03	1.80E-05	2.37E-10	
Toluene	0.11	1	0.2	0.03	1	0.2		7.33E-06			1.58E-01	1.05E-05		
Ethylbenzene	0.485	1	0.2	0.03	0.92	0.1		6.50E-05			6.97E-01	9.33E-05		
Total Xylenes	0.318	1	0.2	0.03	0.9	2		2.13E-06			4.57E-01	3.06E-06		
Total Naphthalenes	0.2	1	0.2	0.13	0.89	0.02		1.65E-04			2.87E-01	2.37E-04		
n-Hexane	0.013	1	0.2	0.03	0.8	0.06		2.93E-06			1.87E-02	4.21E-06		
MTBE	0	1	0.2	0.03	0.8	0.000057	85		0.00E+00		0.00E+00	0.00E+00	0.00E+00	
Ethylene Dibromide (EDB)	0	1	0.2	0.03	0.8	0.03								
1,2 Dichloroethane (EDC)	0.001	1	0.2	0.03	0.8	0.03	0.091	4.51E-07	9.83E-11		1.44E-03	6.48E-07	1.42E-10	
Benz(a)anthracene	0.0006	1	0.2	0.13	0.89	0.73		5.79E-10		for all	8.62E-04		8.31E-10	
Benz(b)fluoranthene	0.0004	1	0.2	0.13	0.89	0.73		9.65E-10		for all	1.44E-03		1.39E-09	
Benz(k)fluoranthene	0.0001	1	0.2	0.13	0.89	0.73		3.86E-10		for all	5.75E-04		5.54E-10	
Benz(a)pyrene	0.0009	1	0.2	0.13	0.89	7.3		8.68E-09		for all	1.29E-03		1.25E-08	
Chrysene	0.001	1	0.2	0.13	0.89	0.073		9.65E-11		for all	1.44E-03		1.39E-10	
Dibenzo(a,h)anthracene	0.0006	1	0.2	0.13	0.89	2.92		2.32E-09		for all	8.62E-04		3.33E-09	
Indeno(1,2,3-cd)pyrene	0.00015	1	0.2	0.13	0.89	0.73		1.45E-10		for all	2.15E-04		2.08E-10	
Sum	1548.814							6.96E-01	1.34E-08		2.22E+03	1.00E+00	1.93E-08	

a. "TPH Test" button below is for testing adjusted condition at a specified TPH concentration.

b. Check columns at left for Pass/Fail detail.

<b>Current Condition</b>	
TPH, mg/kg=	1548.814
HI=	6.962E-01
Cancer RISK=	1.343E-08
Pass or Fail?	Pass
<b>Check Residual Saturation (WAC340-747(10))</b>	

<b>Adjusted Condition</b>	
TPH, mg/kg=	2224.811
HI=	1.000E+00
Cancer RISK=	1.929E-08
Pass or Fail?	Pass
<b>Check Residual Saturation (WAC340-747(10))</b>	

<b>Exposure Parameters</b>	
Average Body Weight, ABW	16 kg
Average Time, AT	6 yr
Exposure Frequency, EF	1 unitless
Exposure Duration, ED	6 yr
Soil Ingestion Rate, SIR	200 mg/day
Dermal Surface Area, SA	2200 cm <sup>2</sup>
<b>for Carcinogens</b>	
Averaging time, AT C	75 yr

# Worksheet for Calculating Soil Cleanup Level for Soil Direct Contact pathway: Method B-Unrestricted Land use (Refer to WAC 173-340-740)

Date: 3/27/2006  
Site Name: 302095 Morton  
Sample Name: SB23-4.5

Chemical of Concern or EC Group	Measured Soil Conc dry basis	Exposure Parameters			Toxicity Parameters			Current Condition			Adjusted Condition			
		ABI	AF	ABS <sub>d</sub>	GI	R <sub>DS</sub>	CPF <sub>a</sub>	HQ	RISK	Pass or Fail?	Soil Conc being tested	HQ	RISK	Pass or Fail?
	mg/kg	unitless	mg/cm <sup>2</sup> -day	unitless	unitless	mg/kg-day	kg-day/mg	unitless	unitless		mg/kg	unitless	unitless	
<b>Petroleum EC Function</b>														
AL_EC >5-6	0.958	1	0.2	0.03	0.8	5.7		2.3E-06			1.94E+00	4.59E-06		
AL_EC >6-8	20.7	1	0.2	0.03	0.8	5.7		4.9E-05			4.18E+01	9.93E-05		
AL_EC >8-10	41.9	1	0.2	0.03	0.8	0.03		1.89E-02			8.46E+01	3.82E-02		
AL_EC >10-12	110	1	0.2	0.03	0.8	0.03		4.96E-02			2.22E+02	1.00E-01		
AL_EC >12-16	530	1	0.2	0.1	0.5	0.03		3.18E-01			1.07E+03	6.42E-01		
AL_EC >16-21	520	1	0.2	0.1	0.5	2		4.68E-03			1.05E+03	9.45E-03		
AL_EC >21-34	120	1	0.2	0.1	0.5	2		1.08E-03			2.42E+02	2.18E-03		
AR_EC >8-10	32.27	1	0.2	0.03	0.8	0.05		8.73E-03			6.52E+01	1.76E-02		
AR_EC >10-12	1.785	1	0.2	0.03	0.8	0.05		4.83E-04			3.61E+00	9.76E-04		
AR_EC >12-16	23	1	0.2	0.1	0.5	0.05		8.28E-03			4.65E+01	1.67E-02		
AR_EC >16-21	109.9871	1	0.2	0.1	0.5	0.03		6.60E-02			2.22E+02	1.33E-01		
AR_EC >21-34	31.9994	1	0.2	0.1	0.5	0.03		1.92E-02			6.46E+01	3.88E-02		
Benzene	0.0005	1	0.2	0.0005	0.95	0.003	0.055	2.09E-06	2.75E-11		1.01E-03	4.21E-06	5.56E-11	
Toluene	0.0861	1	0.2	0.03	1	0.2		5.74E-06			1.74E-01	1.16E-05		
Ethylbenzene	0.015	1	0.2	0.03	0.92	0.1		2.01E-06			3.03E-02	4.06E-06		
Total Xylenes	0.015	1	0.2	0.03	0.9	2		1.01E-07			3.03E-02	2.03E-07		
Total Naphthalenes	0.015	1	0.2	0.13	0.89	0.02		1.24E-05			3.03E-02	2.50E-05		
n-Hexane	0.042	1	0.2	0.03	0.8	0.06		9.47E-06			8.48E-02	1.91E-05		
MTBE	0	1	0.2	0.03	0.8	0.000057	85				0.00E+00	0.00E+00	0.00E+00	
Ethylene Dibromide (EDB)	0	1	0.2	0.03	0.8	0.03	0.091	4.51E-07	9.85E-11		2.02E-03	9.11E-07	1.99E-10	
1,2-Dichloroethane (EDC)	0.001	1	0.2	0.03	0.8	0.03								
Benzof(a)anthracene	0.0005	1	0.2	0.13	0.89		0.73	4.82E-09		for	1.01E-02		9.74E-09	for
Benzof(b)fluoranthene	0.0003	1	0.2	0.13	0.89		0.73	2.89E-10		all	6.06E-04		5.85E-10	all
Benzof(k)fluoranthene	0.0003	1	0.2	0.13	0.89		0.73	2.89E-10			6.06E-04		5.85E-10	
Benzof(a)pyrene	0.0003	1	0.2	0.13	0.89		7.3	2.89E-09			6.06E-04		5.85E-09	
Chrysene	0.007	1	0.2	0.13	0.89		0.073	6.75E-10			1.41E-02		1.36E-09	
Dibenzof(a,h)anthracene	0.0003	1	0.2	0.13	0.89		2.92	1.16E-09			6.06E-04		2.34E-09	
Indeno(1,2,3-cd)pyrene	0.0003	1	0.2	0.13	0.89		0.73	2.89E-10			6.06E-04		5.85E-10	
Sum	1542.7876							4.95E-01	1.05E-08		3.12E+03	1.00E+00	2.13E-08	

a. "TPH Test" button below is for testing adjusted condition at a specified TPH concentration.  
b. Check columns at left for Pass/Fail detail.

<b>Current Condition</b>
TPH, mg/kg= 1542.788
HI= 4.950E-01
Cancer RISK= 1.054E-08
Pass or Fail? Pass
Check Residual Saturation (WAC340-747(10))

<b>Adjusted Condition</b>
TPH, mg/kg= 3116.460
HI= 1.000E+00
Cancer RISK= 2.130E-08
Pass or Fail? Pass
Check Residual Saturation (WAC340-747(10))

Exposure Parameters		
	Units	
for Non-carcinogens		
Average Body Weight, ABW	16	kg
Averaging Time, AT	6	yr
Exposure Frequency, EF	1	unitless
Exposure Duration, ED	6	yr
Soil Ingestion Rate, SIR	200	mg/day
Dermal Surface Area, SA	2200	cm <sup>2</sup>
for Carcinogens		
Averaging time, AT <sub>C</sub>	75	yr

# Worksheet for Calculating Soil Cleanup Level for Soil Direct Contact pathway: Method B-Unrestricted Land use (Refer to WAC 173-340-740)

Date: 3/27/2006

Site Name: 302095 Morton

Sample Name: SB24-4

Chemical of Concern or EC Group	Measured Soil Conc dry basis	Exposure Parameters				Toxicity Parameters		Current Condition			Adjusted Condition			
		ABL	AF	ABS <sub>d</sub>	GI	RfD <sub>d</sub>	CPF <sub>d</sub>	HQ	RISK	Pass or Fail?	Soil Conc being tested	HQ	RISK	Pass or Fail?
	mg/kg	unitless	mg/cm <sup>2</sup> -day	unitless	unitless	mg/kg-day	kg-day/mg	unitless	unitless		mg/kg	unitless	unitless	
<b>Petroleum EC Fraction</b>														
AL_EC>5-6	0.9995	1	0.2	0.03	0.8	5.7		2.4E-06			3.08E+01	7.31E-05		
AL_EC>6-8	1	1	0.2	0.03	0.8	5.7		2.4E-06			3.08E+01	7.31E-05		
AL_EC>8-10	2.66	1	0.2	0.03	0.8	0.03		1.20E-03			8.19E+01	3.69E-02		
AL_EC>10-12	5.9	1	0.2	0.03	0.8	0.03		2.66E-03			1.82E+02	8.19E-02		
AL_EC>12-16	35	1	0.2	0.1	0.5	0.03		2.10E-02			1.08E+03	6.47E-01		
AL_EC>16-21	39	1	0.2	0.1	0.5	2		3.51E-04			1.20E+03	1.08E-02		
AL_EC>21-34	8.9	1	0.2	0.1	0.5	2		8.01E-05			2.74E+02	2.47E-03		
AR_EC>8-10	3.309	1	0.2	0.03	0.8	0.05		8.95E-04			1.02E+02	2.76E-02		
AR_EC>10-12	0.4995	1	0.2	0.03	0.8	0.05		1.35E-04			1.54E+01	4.16E-03		
AR_EC>12-16	1.1	1	0.2	0.1	0.5	0.05		3.96E-04			3.39E+01	1.22E-02		
AR_EC>16-21	7.786	1	0.2	0.1	0.5	0.03		4.67E-03			2.40E+02	1.44E-01		
AR_EC>21-34	1.7985	1	0.2	0.1	0.5	0.03		1.08E-03			5.54E+01	3.32E-02		
Benzene	0.00025	1	0.2	0.0005	0.95	0.003	0.055	1.04E-06	1.38E-11		7.70E-03	3.21E-05	4.24E-10	
Toluene	0.0005	1	0.2	0.03	1	0.2		3.33E-08			1.54E-02	1.03E-06		
Ethylbenzene	0.0005	1	0.2	0.03	0.92	0.1		6.70E-08			1.54E-02	2.06E-06		
Total Xylenes	0.0005	1	0.2	0.03	0.9	2		3.35E-09			1.54E-02	1.03E-07		
Total Naphthalenes	0.0005	1	0.2	0.13	0.89	0.02		4.13E-07			1.54E-02	1.27E-05		
n-Hexane	0.0005	1	0.2	0.03	0.8	0.06		1.13E-07			1.54E-02	3.47E-06		
MTBE	0	1	0.2	0.03	0.8	0.000057	85	0.00E+00			0.00E+00	0.00E+00	0.00E+00	
Ethylene Dichloride (EDB)	0	1	0.2	0.03	0.8	0.03		2.26E-07			1.54E-02	6.94E-06	1.52E-09	
1,2-Dichloroethane (EDC)	0.0005	1	0.2	0.03	0.8	0.03		4.93E-11			9.24E-02	8.91E-08		
Benzof(a)anthracene	0.003	1	0.2	0.13	0.89		0.73	2.89E-09		for	9.24E-02	8.91E-08		for
Benzof(b)fluoranthene	0.003	1	0.2	0.13	0.89		0.73	2.89E-09		all	9.24E-02	8.91E-08		all
Benzof(k)fluoranthene	0.001	1	0.2	0.13	0.89		0.73	9.65E-10		CPAHs	3.08E-02	2.97E-08		CPAHs
Benzof(a)pyrene	0.003	1	0.2	0.13	0.89		7.3	2.89E-08			9.24E-02	8.91E-07		
Chrysene	0.004	1	0.2	0.13	0.89		0.073	3.86E-10			1.23E-01	1.19E-08		Fail
Dibenzof(a,h)anthracene	0.001	1	0.2	0.13	0.89		2.92	3.86E-09			3.08E-02	1.19E-07		
Indeno(1,2,3-cd)pyrene	0.0005	1	0.2	0.13	0.89		0.73	4.82E-10			1.54E-02	1.49E-08		
Sum	107.97125							3.25E-02	4.05E-08		3.32E+03	1.00E+00	1.25E-06	

a. "TPH Test" button below is for testing adjusted condition at a specified TPH concentration.

b. Check columns at left for Pass/Fail detail.

Current Condition	
TPH, mg/kg = 107.971	HI = 3.248E-02
Cancer RISK = 4.048E-08	Pass or Fail? Pass

Adjusted Condition	
TPH, mg/kg = 3324.644	HI = 1.000E+00
Cancer RISK = 1.246E-06	Pass or Fail? Fail

Exposure Parameters	
for Non-carcinogens	Units
Average Body Weight, ABW	16 kg
Averaging Time, AT	6 yr
Exposure Frequency, EF	1 yr
Exposure Duration, ED	6 yr
Soil Ingestion Rate, SIR	200 mg/day
Dermal Surface Area, SA	2200 cm <sup>2</sup>
for Carcinogens	
Averaging time, AT	75 yr

# Worksheet for Calculating Soil Cleanup Level for Soil Direct Contact pathway: Method B-Unrestricted Land use

(Refer to WAC 173-340-740)

Date: 3/27/2006  
 Site Name: 302095 Morton  
 Sample Name: SR27-4.5

Chemical of Concern or EC Group	Measured Soil Conc dry basis	Exposure Parameters				Toxicity Parameters		Current Condition			Adjusted Condition			
		AB1	AF	ABS <sub>a</sub>	GI	RMD <sub>a</sub>	CPF <sub>a</sub>	HQ	RISK	Pass or Fail?	Soil Conc being tested	HQ	RISK	Pass or Fail?
	mg/kg	unless	mg/cm <sup>2</sup> -day	unless	unless	mg/kg-day	kg-day/mg	unless	unless		mg/kg	unless	unless	
<b>Petroleum EC Fraction</b>														
AL_EC >5-6	0.996	1	0.2	0.03	0.8	5.7		2.4E-06			1.44E+02	3.41E-04		
AL_EC >6-8	1	1	0.2	0.03	0.8	5.7		2.4E-06			1.44E+02	3.42E-04		
AL_EC >8-10	1	1	0.2	0.03	0.8	0.03		4.51E-04			1.44E+02	6.50E-02		
AL_EC >10-12	1.5	1	0.2	0.03	0.8	0.03		6.77E-04			2.16E+02	9.75E-02		
AL_EC >12-16	5.6	1	0.2	0.1	0.5	0.03		3.36E-03			8.07E+02	4.84E-01		
AL_EC >16-21	6.2	1	0.2	0.1	0.5	2		5.58E-05			8.94E+02	8.04E-03		
AL_EC >21-34	2.3	1	0.2	0.1	0.5	2		2.07E-05			3.32E+02	2.98E-03		
AR_EC >8-10	0.9955	1	0.2	0.03	0.8	0.05		2.69E-04			1.44E+02	3.88E-02		
AR_EC >10-12	0.4995	1	0.2	0.03	0.8	0.05		1.35E-04			7.20E+01	1.95E-02		
AR_EC >12-16	0.5	1	0.2	0.1	0.5	0.05		1.80E-04			7.21E+01	2.60E-02		
AR_EC >16-21	1.89925	1	0.2	0.1	0.5	0.03		1.14E-03			2.74E+02	1.64E-01		
AR_EC >21-34	0.9997	1	0.2	0.1	0.5	0.03		6.00E-04			1.44E+02	8.65E-02		
Benzene	0.01	1	0.2	0.0005	0.95	0.003	0.055	4.17E-05	5.51E-10		1.44E+00	6.01E-03	7.94E-08	
Toluene	0.001	1	0.2	0.03	1	0.2		6.66E-08			1.44E-01	9.61E-06		
Ethylbenzene	0.0005	1	0.2	0.03	0.92	0.1		6.70E-08			7.21E-02	9.66E-06		
Total Xylenes	0.004	1	0.2	0.03	0.9	2		2.68E-08			5.77E-01	3.87E-06		
Total Naphthalenes	0.0005	1	0.2	0.13	0.89	0.02		4.13E-07			7.21E-02	5.95E-05		
n-Hexane	0.004	1	0.2	0.03	0.8	0.06		9.02E-07			5.77E-01	1.30E-04		
MTBE	0	1	0.2	0.03	0.8	0.000057	85	2.26E-07	0.00E+00		0.00E+00	0.00E+00	0.00E+00	
1,2-Dichloroethane (EDC)	0.0005	1	0.2	0.03	0.8	0.03	0.091	2.26E-07	4.93E-11		7.21E-02	3.25E-05	7.10E-09	
Benzof(a)anthracene	0.00015	1	0.2	0.13	0.89		0.73	1.45E-10	1.45E-10	for all	2.16E-02	2.09E-08	2.09E-08	for all
Benzof(b)fluoranthene	0.00015	1	0.2	0.13	0.89		0.73	1.45E-10	1.45E-10	all	2.16E-02	2.09E-08	2.09E-08	all
Benzof(k)fluoranthene	0.00015	1	0.2	0.13	0.89		0.73	1.45E-10	1.45E-10	cPAHs	2.16E-02	2.09E-08	2.09E-08	cPAHs
Benzof(a)pyrene	0.00015	1	0.2	0.13	0.89		0.73	1.45E-09	1.45E-09		2.16E-02	2.09E-07	2.09E-07	
Chrysene	0.00015	1	0.2	0.13	0.89		0.073	1.45E-11	1.45E-11		2.16E-02	2.09E-09	2.09E-09	
Dibenzof(a,h)anthracene	0.00015	1	0.2	0.13	0.89		2.92	5.79E-10	5.79E-10		2.16E-02	8.34E-08	8.34E-08	
Indeno(1,2,3-cd)pyrene	0.00015	1	0.2	0.13	0.89		0.73	1.45E-10	1.45E-10		2.16E-02	2.09E-08	2.09E-08	
Sum	23.5115							6.94E-03	3.22E-09		3.39E+03	1.00E+00	4.64E-07	

a. "TPH Test" button below is for testing adjusted condition at a specified TPH concentration.

b. Check columns at left for Pass/Fail detail.

Current Condition	
TPH, mg/kg= 23.512	
HI= 6.936E-03	
Cancer RISK= 3.219E-09	
Pass or Fail? Pass	

Adjusted Condition	
TPH, mg/kg= 3389.674	
HI= 1.000E+00	
Cancer RISK= 4.640E-07	
Pass or Fail? Pass	
Check Residual Saturation (WAC340-747(10))	

Exposure Parameters	
For Non-carcinogens	Units
Average Body Weight, ABW	kg
Averaging Time, AT	yr
Exposure Frequency, EF	yr
Exposure Duration, ED	yr
Soil Ingestion Rate, SIR	mg/day
Dermal Surface Area, SA	cm <sup>2</sup>
for Carcinogens	
Averaging time, AT_C	yr

# Worksheet for Calculating Soil Cleanup Level for Soil Direct Contact pathway: Method B-Unrestricted Land use (Refer to WAC 173-340-740)

Date: 3/27/2006  
Site Name: 302095 Morton  
Sample Name: SB38-2.5

Chemical of Concern or EC Group	Measured Soil Conc dry basis	Exposure Parameters			Toxicity Parameters			Current Condition			Adjusted Condition			
		AB1	AF	ABS <sub>d</sub>	GI	RD <sub>d</sub>	CPF <sub>d</sub>	HQ	RISK	Pass or Fail?	Soil Conc being tested	HQ	RISK	Pass or Fail?
	mg/kg	unitless	mg/cm <sup>2</sup> -day	unitless	unitless	mg/kg-day	kg-day/mg	unitless	unitless		mg/kg	unitless	unitless	
Petroleum EC Fraction														
AL_EC>5-6	0.973	1	0.2	0.03	0.8	5.7		2.3E-06			1.21E+00	2.86E-06		
AL_EC>6-8	2.84	1	0.2	0.03	0.8	5.7		6.7E-06			3.52E+00	8.36E-06		
AL_EC>8-10	23.6	1	0.2	0.03	0.8	0.03		1.06E-02			2.93E+01	1.32E-02		
AL_EC>10-12	240	1	0.2	0.03	0.8	0.03		1.08E-01			2.98E+02	1.34E-01		
AL_EC>12-16	870	1	0.2	0.1	0.5	0.03		5.22E-01			1.08E+03	6.47E-01		
AL_EC>16-21	580	1	0.2	0.1	0.5	2		5.22E-03			7.19E+02	6.47E-03		
AL_EC>21-34	84	1	0.2	0.1	0.5	2		7.56E-04			1.04E+02	9.37E-04		
AR_EC>8-10	20.098	1	0.2	0.03	0.8	0.05		5.44E-03			2.49E+01	6.74E-03		
AR_EC>10-12	5.599	1	0.2	0.03	0.8	0.05		1.52E-03			6.94E+00	1.88E-03		
AR_EC>12-16	74	1	0.2	0.1	0.5	0.05		2.66E-02			9.18E+01	3.30E-02		
AR_EC>16-21	179.99925	1	0.2	0.1	0.5	0.03		1.08E-01			2.23E+02	1.34E-01		
AR_EC>21-34	29.9997	1	0.2	0.1	0.5	0.03		1.80E-02			3.72E+01	2.23E-02		
Benzene	0.0005	1	0.2	0.0005	0.95	0.003	0.055	2.09E-06	2.75E-11		6.20E-04	2.59E-06	3.41E-11	
Toluene	0.001	1	0.2	0.03	1	0.2		6.66E-08			1.24E-03	8.26E-08		
Ethylbenzene	0.001	1	0.2	0.03	0.92	0.1		1.34E-07			1.24E-03	1.66E-07		
Total Xylenes	0.001	1	0.2	0.03	0.9	2		6.71E-09			1.24E-03	8.32E-09		
Total Naphthalenes	0.001	1	0.2	0.13	0.89	0.02		8.26E-07			1.24E-03	1.02E-06		
n-Hexane	0.027	1	0.2	0.03	0.8	0.06		6.09E-06			3.35E-02	7.55E-06		
MTBE	0	1	0.2	0.03	0.8	0.000057	85				0.00E+00	0.00E+00	0.00E+00	
1,2-Dichloroethane (EDC)	0.001	1	0.2	0.03	0.8	0.03	0.091	4.51E-07	9.85E-11		1.24E-03	5.59E-07	1.22E-10	
Benz(a)anthracene	0.00015	1	0.2	0.13	0.89		0.73	1.45E-10	1.45E-10	for all	1.86E-04		1.79E-10	for all
Benz(b)fluoranthene	0.00015	1	0.2	0.13	0.89		0.73	1.45E-10	1.45E-10	for all	1.86E-04		1.79E-10	for all
Benz(k)fluoranthene	0.00015	1	0.2	0.13	0.89		0.73	1.45E-10	1.45E-10	for all	1.86E-04		1.79E-10	for all
Benz(a)pyrene	0.00015	1	0.2	0.13	0.89		0.73	1.45E-10	1.45E-10	for all	1.86E-04		1.79E-10	for all
Chrysene	0.00015	1	0.2	0.13	0.89		0.73	1.45E-10	1.45E-10	for all	1.86E-04		1.79E-10	for all
Dibenz(a,h)anthracene	0.00015	1	0.2	0.13	0.89		0.73	1.45E-10	1.45E-10	for all	1.86E-04		1.79E-10	for all
Indeno(1,2,3-cd)pyrene	0.00015	1	0.2	0.13	0.89		0.73	1.45E-10	1.45E-10	for all	1.86E-04		1.79E-10	for all
Sum	2111.1425							8.06E-01	2.74E-09		2.62E+03	1.00E+00	3.40E-09	

a "TPH Test" button below is for testing adjusted condition at a specified TPH concentration.  
b. Check columns at left for Pass/Fail detail.

Current Condition	
TPH, mg/kg= 2111.143	
HI= 8.065E-01	
Cancer RISK= 2.745E-09	
Pass or Fail? Pass	
Check Residual Saturation (WAC340-747(10))	

Adjusted Condition	
TPH, mg/kg= 2617.715	
HI= 1.000E+00	
Cancer RISK= 3.404E-09	
Pass or Fail? Pass	
Check Residual Saturation (WAC340-747(10))	

Exposure Parameters	
for Non-carcinogens	Units
Average Body Weight, ABW	kg
Averaging Time, AT	yr
Exposure Frequency, EF	unitless
Exposure Duration, ED	yr
Soil Ingestion Rate, SIR	mg/day
Dermal Surface Area, SA	cm <sup>2</sup>
for Carcinogens	
Averaging time, AT	yr